

REMARKS

The Applicant wishes to thank the Examiner for his analysis of the pending claims and his time during the examiner interview. Claims 1-3 and 8-21 are pending in the application. Claims 1-3, 8-14, 16-19, and 21 are amended and claims 4-7 are cancelled. The Applicant addresses the claim rejections below.

Interview Summary

A telephonic interview was held on December 3, 2009 between Examiners Ward and Gamino and Applicant's U.S. representatives, Jakub Michna and Tim Murphy. Professor Gregory Hancock and Applicant's Australian representatives, Robert Wulff, and Samantha Keirs, also participated in the interview. During the interview, Professor Hancock explained that the prior art did not disclose the claimed invention. Namely, the prior art did not disclose applying multiple welds continuously along the surface of a polygonal hollow section (PHS) to a location that is remote from the connection weld. Instead, the prior art taught applying a cosmetic weld back over the top of the connection weld. In response, Examiner Gamino took the position that the term "surface" included "any" surface on the polygonal hollow section (including the groove face). The Examiners argued that the claim language: "to cause the greatest longitudinal normal strain to occur adjacent the remote location" was conditional and, therefore, not limiting. Examiner Gamino also took the position that the singular cosmetic weld of Tadateru could contain multiple weld beads. Nonetheless, some agreement was reached regarding the interpretation of claim 1. The Examiners and Applicant's representatives agreed that claim 1 requires the *width* (not the length) of the second weld to extend to a location that is remote from the connection weld. The amendments to claim 1 and the remarks below

address the Examiners' concerns expressed during the interview.

Rejections

The office action rejects the claims as obvious over each of the Tadateru reference and a newly cited AWS Welding Handbook. These references, however, do not disclose all of the limitations of the claims.

Claim 1 is directed to a method for welding a member and an end of a polygonal hollow section (PHS). As amended, the claim requires at least three welds to be applied to the PHS. First, the claim requires a connection weld that connects the member and a tensile flange of the PHS. Second, the claim requires that a second weld is formed on the surface of the tensile flange at a location that is remote from the connection weld. Third, an intermediate weld is formed on the surface of the tensile flange between the connection weld and the second weld. It is important to note that claim 1 does not require the three welds to be applied in any particular order. For example, in some embodiments, the second weld is applied before the intermediate weld, however, in other embodiments, the second weld is applied after the intermediate weld.

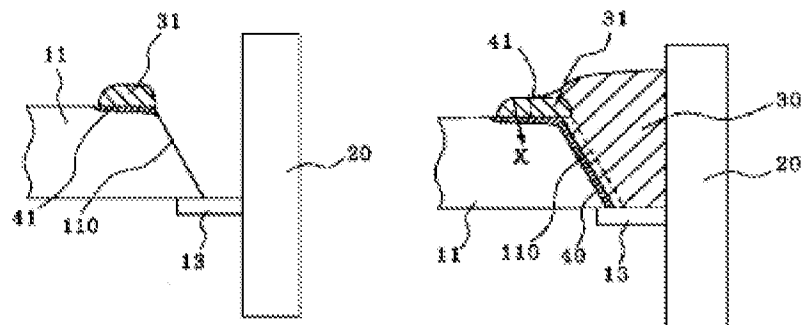
The amendments to claim 1 also address the Examiners' concerns expressed during the interview. As amended, the claim requires the second and intermediate welds to be formed "*on the surface of the tensile flange.*" This claim language excludes the interpretation that the second and intermediate welds are formed on the groove face or beveled edge of the PHS.

Claim 1 further requires forming the second and intermediate welds by applying weld beads *transversely to the PHS*. The intermediate and second welds also extend "continuously along the surface of the PHS from the connection weld to the location that

is remote from the connection weld.” This claim language makes clear that the *width* (not the length) of the intermediate and second welds extend to a location that is remote from the connection weld.

Claim 1 also requires that the formation of the second and intermediate welds on the surface of the tensile flange causes “a greatest longitudinal normal strain to occur adjacent the remote location.” During the interview, the Examiners argued that causing a greatest longitudinal normal strain to occur adjacent the remote location was not a limiting element of the claim because it was conditional on a bending moment being applied to the joint. Applicant disagrees that the limitation is conditional because a bending moment is always applied to the joint due to the weight of the PHS. Nonetheless, to advance prosecution, the Applicant has removed the conditional “bending moment” language from the claim to clarify that the second and intermediate welds “cause a greatest longitudinal normal strain to occur adjacent the remote location.”

These amendments to claim 1 further support its patentability over the Tadateru reference because Tadateru does not disclose second and intermediate welds that are formed on the surface of the tensile flange. As can be seen from the Figures 2A and 2B below, Tadateru forms a singular cosmetic infill weld (31) on the column (11) outside of the groove (110):



In contrast, claim 1 requires at least second and intermediate welds on the surface of the tensile flange. The disclosure of Tadateru does not meet this limitation. The office action argues that the singular cosmetic weld of Tadateru could contain multiple weld beads. Nonetheless, Tadateru does not disclose multiple beads or welds formed on a surface of the tensile flange. In fact, in many embodiments, Tadateru takes the opposite approach and applies the cosmetic weld back over the top of the connection weld (in a stacking arrangement). *See* Figure 1B of Tadateru.

Even if the singular cosmetic weld of Tadateru could contain multiple weld beads, there is nothing in Tadateru to suggest applying the second and intermediate welds to “cause a greatest longitudinal normal strain to occur adjacent the remote location.” In fact, it can be argued that the converse applies, in that Tadateru is concerned with disguising the connection weld.

Furthermore, claim 1 requires more than just forming two welds on the surface of the tensile flange. The second and intermediate welds must extend “continuously along the surface of the PHS from the connection weld to the location that is remote from the connection weld *to cause a greatest longitudinal normal strain to occur adjacent the remote location.*” This structural property of the tensile flange results from sufficiently extending the width of the second and intermediate welds so that the heat affected zone is moved away from the joint. Moving strain away from the joint by applying *multiple* welds to the surface of the tensile flange is not disclosed, taught, or suggested by Tadateru and, for this reason, claim 1 is patentable over Tadateru.

The (singular) cosmetic infill weld (31) taught in Tadateru functions to cover and hide the weld joint, for aesthetic reasons. It would be counterintuitive for a person of

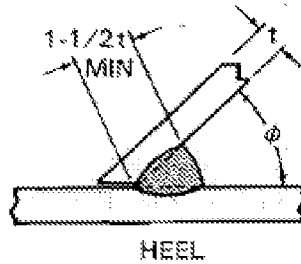
ordinary skill in the art to then modify this cosmetic infill weld to be formed of multiple weld beads. Similarly, there is no teaching in Tadateru to extend along a surface of the tensile flange. If, as the Examiner considers, it were considered to be obvious to substitute the singular cosmetic infill weld (31) of Tadateru with multiple weld beads, there is still no teaching in Tadateru of the manner of: forming a connection weld; forming a second weld at a location on the surface of the tensile flange that is remote from the connection weld; and forming an intermediate weld between the connection weld and the second weld, such that the intermediate weld and second weld extend between the connection weld and the remote location, as in the present application, that results in the greatest longitudinal normal strain to occur adjacent the remote location.

It is submitted that there is a two-step leap being made by the Examiner to introduce multiple weld beads, and then to form the weld in the manner identified, to cause the greatest longitudinal normal strain to occur adjacent the remote location. This two-step leap indicates that it would *not* have been obvious for a person of skill in the art to arrive at the present invention from the teachings of Tadateru.

The office action argues that Tadateru's weld *intrinsically* distributes strain away from the joint and also argues that the Applicant has not provided any evidence to show that Tadateru does not intrinsically achieve the claimed limitations. *See* Office Action at pages 19-20. Such an approach contradicts the Manual of Patent Examining Procedure, which explains that it is the Examiner's burden to show inherency. *See* MPEP 2112(IV) ("The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic."). There is nothing in the Tadateru reference that suggests the cosmetic weld extends sufficiently

from the joint to distribute strain away from the joint to a remote location.

The AWS Welding Handbook is even further from the mark. As shown below, the handbook discloses a weld between two members:



The handbook does not provide any detail as to how many welds are used or how the welds are formed. In this case again, the office action argues that multiple weld beads could be used to form the weld, but the handbook itself does not disclose the use of multiple welds or beads. Also, the handbook does not disclose extending the intermediate and second welds from the connection weld to a remote location *to cause a greatest longitudinal normal strain to occur adjacent the remote location*, as required by claim 1. Therefore, claim 1 is also patentable over the welding handbook.

The Linnert reference is asserted in combination with Tadateru against some of the dependent claims, but the Linnert reference also does not disclose forming second and intermediate welds on a surface of a tensile flange and extending the welds to a remote location such that a greatest longitudinal normal strain occurs adjacent the remote location. Therefore, claim 1 is also patentable over the combination of Tadateru and Linnert.

Independent claims 17 and 18 also require “applying *multiple* weld beads transversely across a *tensile flange*” in the context of moving strain and heat affected zones and therefore, these claims are patentable for the reasons stated above with respect to claim 1. All of the dependent claims are also allowable for similar reasons.

All of the rejections have been addressed and the Applicant requests issuance of a notice of allowance. A one month extension of time is required for consideration of this response. Please charge deposit account number 19-4972 for the extension of time. If any additional fees are required for the timely consideration of this response, please further charge the same deposit account number.

Respectfully submitted,

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